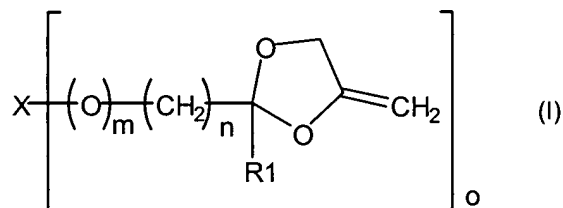


AMENDMENTS TO THE CLAIMS:

This listing of claims includes the claim amendments to claims 1-17 as shown in the amendment filed on January 5, 2004, new claims 18-25 as added by this Supplemental Amendment and will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A 4-methylene-1,3-dioxolane compound of the general formula (I):



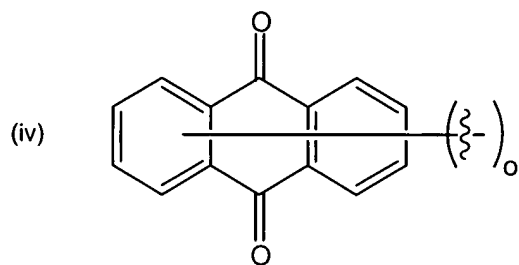
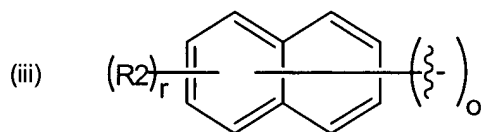
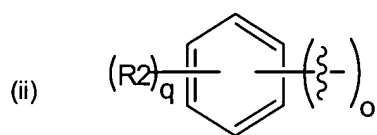
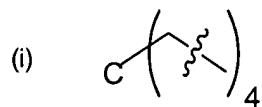
wherein R1 denotes hydrogen, C₅-C₆-cycloalkyl or C₁-C₄-alkyl; m and n, which may be the same or different, denote 0 or 1, wherein m ≤ n, o denotes 2, 3 or 4 depending on the valency of the group X; and X denotes a C-C single bond, straight-chain when said m denotes 1, or branched C₁-C₁₈-alkylene, C₅-C₆-cycloalkylene, C₈-C₁₈-arylalkylene, -CH₂(OCH₂CH₂)_pOCH₂-, -

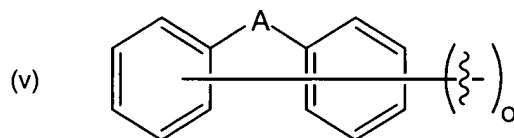
U.S. Patent Application Serial No. **09/934,655**

Response dated February 20, 2004

Reply to OA of **September 5, 2003**

$\text{CH}_2(\text{OCH}(\text{CH}_3)\text{CH}_2)_p\text{OCH}_2-$, wherein p is an integer from 0 to 100, or a group selected from





wherein $q \leq (6-o)$, $r \leq (8-o)$, R_2 denotes H or a C_1 - C_4 -alkyl group and A denotes a single bond or denotes $-C(CH_3)_2-$, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$ or $-(C=O)-$, and wherein the 2-position of the 1,3-dioxolane ring is not linked directly to an aromatic group.

Claim 2 (Currently amended): The A 4-methylene-1,3-dioxolane compound according to ~~claim 1~~, selected from the group consisting of:

- 1,3-Bis-(4-methylene-1,3-dioxolane-2-yl)propane,
- 1,2-bis-(2-methyl-4-methylene-1,3-dioxolane-2-yl)ethane,
- 2,2'-bis-[4-methylene oxyphenyl-(4-methylene-1,3-dioxolane-2-yl)]propane,
- bis-(4-methylene-1,3-dioxolane-2-yl)methane,
- 1,5-bis-(4-methylene-1,3-dioxolane-2-yl)pentane,
- 1,6-bis-(4-methylene-1,3-dioxolane-2-yl)hexane,
- bis-(4-methylene-1,3-dioxolane-2-yl)methylether,
- 1,3-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]propane,
- tetrakis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]neopentane,
- 1,4-bis-(4-methylene-1,3-dioxolane-2-yl)cyclohexane,

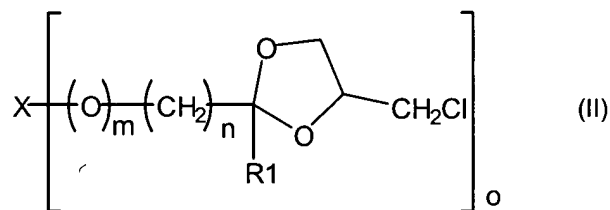
U.S. Patent Application Serial No. 09/934,655

Response dated February 20, 2004

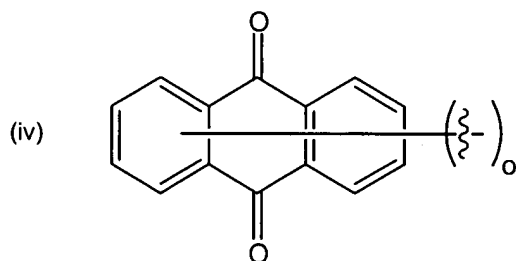
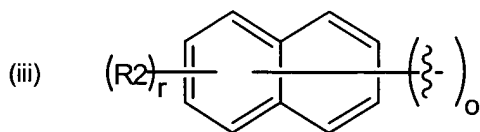
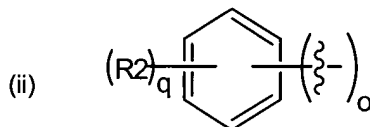
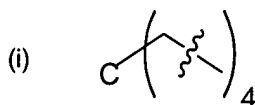
Reply to OA of September 5, 2003

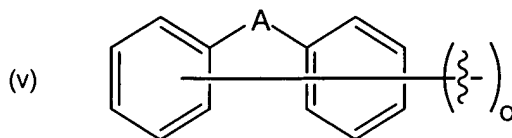
1,2-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]ethane,
2,2'-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]ethylether,
1,4-bis-[(4-methylene-1,3-dioxolane-2-yl)ethenyl]benzene,
1,3-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]benzene,
1,5-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]naphthalene,
2,2-bis-[4-(4-methylene-1,3-dioxolane-2-yl)methylene oxyphenyl]propane,
bis-[4-(4-methylene-1,3-dioxolane-2-yl)methylene oxyphenyl]methane,
4,4'-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]biphenyl,
2,6-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]anthraquinone, and
1,3,5-tris-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]benzene.

Claim 3 (Withdrawn): A 4-chloromethyl-1,3-dioxolane compound of the general formula (II):



wherein R1, m, n, o and X have the same meanings as those defined for general formula (I) in claim 1, respectively denotes hydrogen, C₅-C₆-cycloalkyl or C₁-C₄-alkyl; m and n, which may be the same or different, denote 0 or 1, wherein m ≤ n, o denotes 2, 3 or 4 depending on the valency of the group X; and X denotes a C-C single bond, straight-chain, or branched C₁-C₁₈-alkylene, C₅-C₆-cycloalkylene, C₈-C₁₈-arylalkylene, -CH₂(OCH₂CH₂)_pOCH₂-, -CH₂(OCH(CH₃)CH₂)_pOCH₂-, wherein p is an integer from 0 to 100, or a group selected from





wherein $q \leq (6-o)$, $r \leq (8-o)$, R2 denotes H or a C₁-C₄-alkyl group and A denotes a single bond or denotes -C(CH₃)₂-, -C(CF₃)₂-, -CH₂-, -SO₂- or -(C=O)-, and wherein the 2-position of the 1,3-dioxolane ring is not linked directly to an aromatic group.

Claim 4 (Withdrawn): The 4-chloromethyl-1,3-dioxolane according to claim 3, selected from the group consisting of:

- 1,3-bis-(4-chloromethyl-1,3-dioxolane-2-yl)propane,
- 1,2-bis-(2-methyl-4-chloromethyl-1,3-dioxolane-2-yl)ethane,
- 2,2'-bis-[4-methylene oxyphenyl-(4-chloromethyl-1,3-dioxolane-2-yl)]propane,
- bis-(4-chloromethyl-1,3-dioxolane-2-yl)methane,
- 1,5-bis-(4-chloromethyl-1,3-dioxolane-2-yl)pentane,
- 1,6-bis-(4-chloromethyl-1,3-dioxolane-2-yl)hexane,
- bis-(4-methylene-1,3-dioxolane-2-yl)methylether,
- 1,3-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]propane,
- tetrakis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]neopentane,
- 1,4-bis-(4-chloromethyl-1,3-dioxolane-2-yl)cyclohexane,
- 1,2-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]ethane,

U.S. Patent Application Serial No. 09/934,655

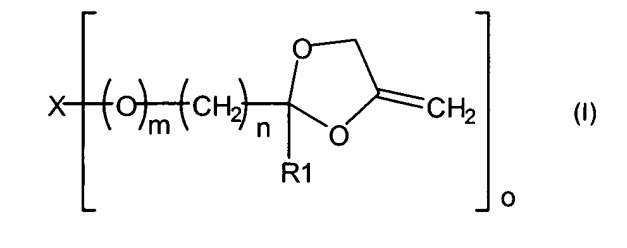
Response dated February 20, 2004

Reply to OA of September 5, 2003

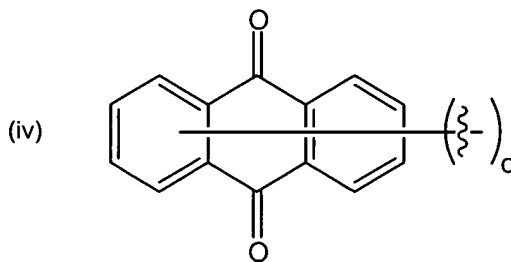
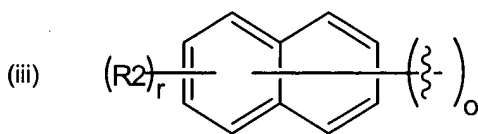
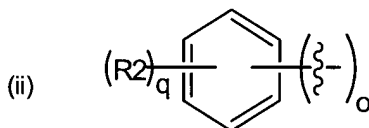
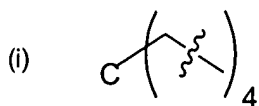
2,2'-bis-[(4-methylene-1,3-dioxolane-2-yl)methylene oxy]ethylether,
1,4-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)ethenyl]benzene,
1,3-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]benzene,
1,5-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]naphthalene,
2,2-bis-[4-(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxyphenyl]propane,
bis-[4-(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxyphenyl]methane,
4,4'-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]biphenyl,
2,6-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]anthraquinone, and
1,3,5-tris-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]benzene.

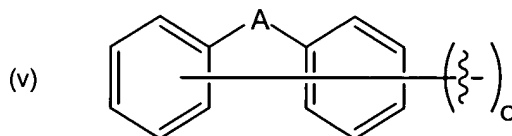
Claim 5 (Canceled)

Claim 6 (Currently amended): ~~The process according to claim 5;~~ A process for the production of a 4-methylene-1,3-dioxolane compound of the general formula (I):



wherein R1 denotes hydrogen, C₅-C₆-cycloalkyl or C₁-C₄-alkyl; m and n, which may be the same or different, denote 0 or 1, wherein m ≤ n, o denotes 2, 3 or 4 depending on the valency of the group X; and X denotes a C-C single bond, straight-chain or branched C₁-C₁₈-alkylene, C₅-C₆-cycloalkylene, C₈-C₁₈-arylalkylene, -CH₂(OCH₂CH₂)_pOCH₂-, -CH₂(OCH(CH₃)CH₂)_pOCH₂-, wherein p is an integer from 0 to 100, or a group selected from

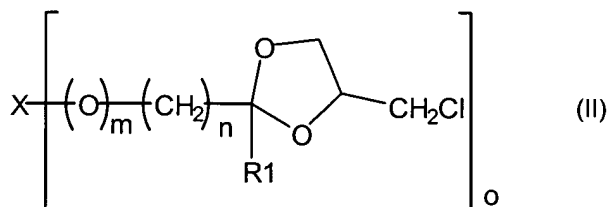




wherein $q \leq (6-o)$, $r \leq (8-o)$, R2 denotes H or a C₁-C₄-alkyl group and A denotes a single bond or denotes -C(CH₃)₂-, -C(CF₃)₂-, -CH₂-, -SO₂- or -(C=O)-, and wherein the 2-position of the 1,3-dioxolane ring is not linked directly to an aromatic group,

the process comprising the steps of:

treating a 4-chloromethyl-1,3-dioxolane compound of the general formula (II):



wherein R1, m, n, o and X have the same meaning, respectively, as those defined for general formula (I) above,

with a base at a temperature from 0°C to 150°C to obtain a reaction product; and

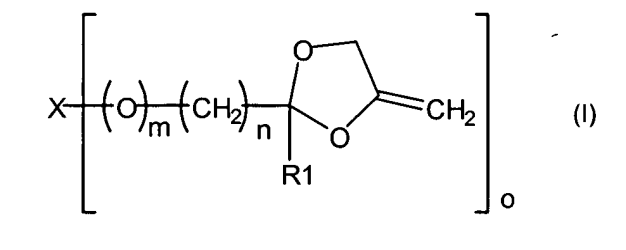
isolating the reaction product in accordance with a *per se* known process

wherein the process it is implemented at a temperature from 15°C to 60°C.

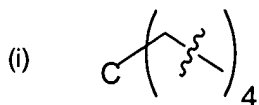
Claim 7 (Currently Amended): The process according to claim [[5]] 6, wherein the treatment is implemented in the presence of a solvent.

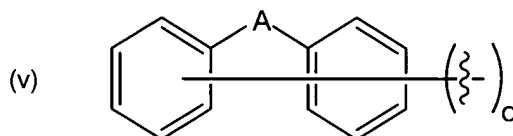
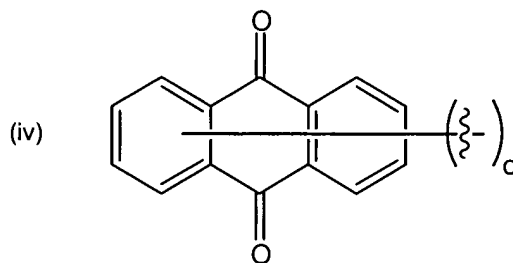
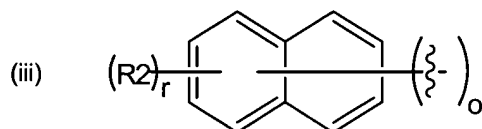
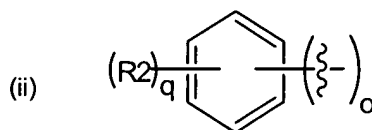
Claim 8 (Original): The process according to claim 7, wherein the solvent is a good solvent for the base.

Claim 9 (Currently amended): ~~The process according to one of claims 5 to 8~~ A process for the production of a 4-methylene-1,3-dioxolane compound of the general formula (I):



wherein R1 denotes hydrogen, C₅-C₆-cycloalkyl or C₁-C₄-alkyl; m and n, which may be the same or different, denote 0 or 1, wherein m ≤ n, o denotes 2, 3 or 4 depending on the valency of the group X; and X denotes a C-C single bond, straight-chain or branched C₁-C₁₈-alkylene, C₅-C₆-cycloalkylene, C₈-C₁₈-arylalkylene, -CH₂(OCH₂CH₂)_pOCH₂-, -CH₂(OCH(CH₃)CH₂)_pOCH₂-, wherein p is an integer from 0 to 100, or a group selected from

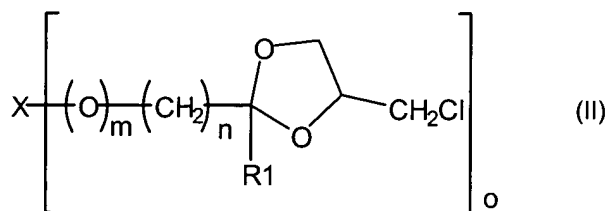




wherein $q \leq (6-o)$, $r \leq (8-o)$, R2 denotes H or a C₁-C₄-alkyl group and A denotes a single bond or denotes -C(CH₃)₂-, -C(CF₃)₂-, -CH₂-, -SO₂- or -(C=O)-, and wherein the 2-position of the 1,3-dioxolane ring is not linked directly to an aromatic group,

the process comprising the steps of:

treating a 4-chloromethyl-1,3-dioxolane compound of the general formula (II):



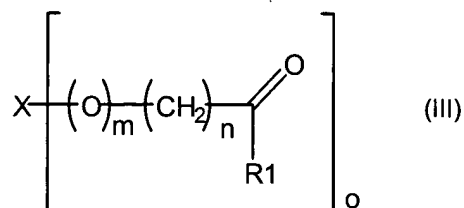
wherein R1, m, n, o and X have the same meaning, respectively, as those defined for general formula (I) above,

with a base at a temperature from 0°C to 150°C to obtain a reaction product; and

isolating the reaction product in accordance with a *per se* known process, wherein the base is potassium-*tert.*-butylate.

Claim 10 (Withdrawn): A process for the production of a 4-chloromethyl-1,3-dioxolane compound as recited in claim 3, comprising the steps of:

reacting a compound of the general formula (III):



U.S. Patent Application Serial No. 09/934,655
Response dated February 20, 2004
Reply to OA of September 5, 2003

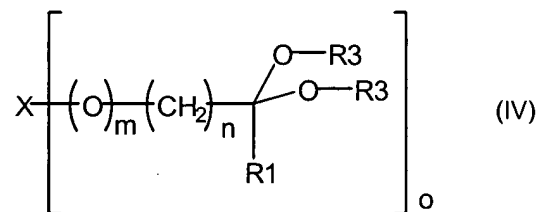
wherein R1, m, n, o and X have the same meanings as those defined for general formula (II) in claim 3, respectively, with 3-chloro-1,2-propanediol; and
removing the resulting reaction water by distillation.

Claim 11 (Withdrawn): The process according to claim 10, wherein it is carried out in the presence of a catalyst.

Claim 12 (Withdrawn): The process according to claim 10 or 11, wherein an entrainer is used.

Claim 13 (Withdrawn): A process for the production of a 4-chloromethyl-1,3-dioxolanes as recited in claim 3, comprising the steps of:

treating an acetal of the general formula (IV):



U.S. Patent Application Serial No. 09/934,655

Response dated February 20, 2004

Reply to OA of September 5, 2003

wherein R1, m, n, o and X have the same meanings as those defined for general formula (II) in claim 3, respectively, and R3 denotes a methyl or ethyl group, with 3-chloro-1,2-propanediol in the presence of an acidic catalyst at a temperature from 25°C to 150°C; and

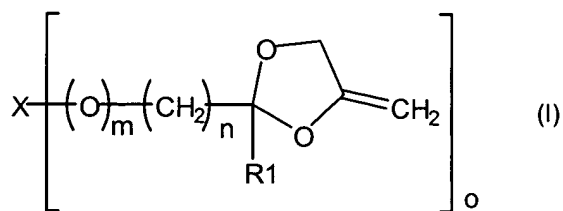
removing the resulting alcohol by distillation.

Claim 14 (Withdrawn): A composition capable of emission-free, photocationic cross-linking comprising at least one 4-methylene-1,3-dioxolane compound according to claim 1 and at least one photo-initiator.

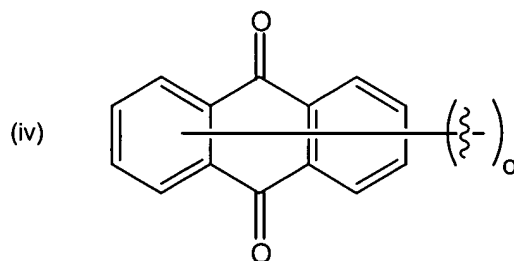
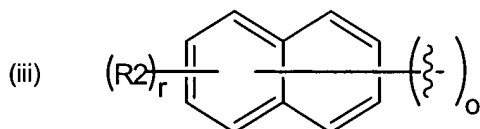
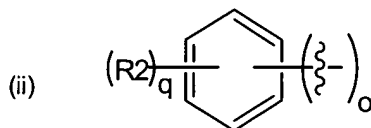
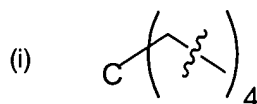
Claim 15 (Withdrawn): The composition according to claim 14, wherein the photo-initiator comprises a triaryl sulfonium salt or a diaryl iodonium salt.

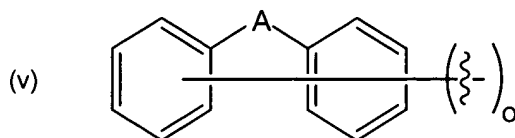
Claim 16 (Withdrawn): A transparent film obtained from a composition according to claim 14 or 15.

Claim 17 (New): A 4-methylene-1,3-dioxolane compound of the general formula (I):



wherein R1 denotes hydrogen, C₅-C₆-cycloalkyl or C₁-C₄-alkyl; m and n, which may be the same or different, denote 0 or 1, wherein m ≤ n, o denotes 2, 3 or 4 depending on the valency of the group X; and X denotes a C-C single bond, straight-chain or branched C₁-C₁₈-alkylene, C₅-C₆-cycloalkylene, C₈-C₁₈-arylalkylene, -CH₂(OCH₂CH₂)_pOCH₂-, -CH₂(OCH(CH₃)CH₂)_pOCH₂-, wherein p is an integer from 0 to 100, or a group selected from





wherein $q \leq (6-o)$, $r \leq (8-o)$, R_2 denotes H or a C_1 - C_4 -alkyl group and A denotes a single bond or denotes $-C(CH_3)_2-$, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$ or $-(C=O)-$, and wherein the 2-position of the 1,3-dioxolane ring is not linked directly to an aromatic group.

Claim 18 (New): The 4-methylene-1,3-dioxolane compound according to claim 1, being 2,2'-oxybismethylene-bis-(4-methylene-1,3-dioxolane).

Claim 19 (New): The 4-chloromethyl-1,3-dioxolane compound according to claim 3, being 2,2'-oxybismethylene-bis-(4-chloromethyl-1,3-dioxolane).

Claim 20 (New): The 4-methylene-1,3-dioxolane compound according to claim 1, being the product of the reaction of diglycolaldehyde and 3-chloro-1,2-propandiol.

Claim 21 (New): The 4-chloromethyl-1,3-dioxolane compound according to claim 3, being the isolated product of the reaction of diglycolaldehyde and 3-chloro-1,2-propandiol treated with a base at temperatures 0°C and 150°C .

U.S. Patent Application Serial No. 09/934,655
Response dated February 20, 2004
Reply to OA of September 5, 2003

Claim 22 (New): The 4-methylene-1,3-dioxolane compound according to claim 1, being 2,2'-oxybis(ethyleneoxymethylene)-bis-(4-methylene-1,3-dioxolane).

Claim 23 (New): The 4-chloromethyl-1,3-dioxolane compound according to claim 3, being 2,2'-oxybis(ethyleneoxymethylene)-bis-(4-chloromethyl-1,3-dioxolane).

Claim 24 (New): The 4-methylene-1,3-dioxolane compound according to claim 1, made by the steps of synthesizing an acetal compound by reacting a compound selected from the group consisting of chloroacetaldehyde dimethylacetal, bromoacetaldehyde dimethylacetal, chloroacetaldehyde diethylacetal and bromoacetaldehyde diethylacetal with diethylene glycol to form a resulting acetal compound followed by reacting said resulting acetal compound with 3-chloro-1,2-propandiol.

Claim 25 (New): The 4-chloromethyl-1,3-dioxolane compound according to claim 3, made by the steps of synthesizing an acetal compound by reacting a compound selected from the group consisting of chloroacetaldehyde dimethylacetal, bromoacetaldehyde dimethylacetal, chloroacetaldehyde diethylacetal and bromoacetaldehyde diethylacetal with diethylene glycol to form a resulting acetal compound followed by reacting said resulting acetal compound with 3-

U.S. Patent Application Serial No. **09/934,655**
Response dated February 20, 2004
Reply to OA of **September 5, 2003**

chloro-1,2-propandiol to form a resulting product, treating the product with a base at temperatures between 0°C and 150°C and isolating treated product.